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Invited Paper

How to make "Value Flow" for a Start-up Enterprise

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Abstract

This paper is about research towards the design of a start-up organization "OpDieFiets.nl". The start up focuses on market demand for quality bicycles at the lowest price possible for the Dutch market. Theories around innovation and value systems form the background of designing the organization. The 3C value flow model currently in development defines the core value drivers for enterprises and is used to pre-design the value system for OpDieFiets.nl. Four other start-up companies were investigated with help of the 3C value flow model to define the value system for OpDieFiets.nl.

Keywords: 3C value flow model, Low-cost, Value networks, Lean manufacturing, Start-ups, Bicycle

1. INTRODUCTION

Today's business market place for various products is characterized by pressure on better quality, faster delivery and lower price. There is a constant pressure on companies to perform better than the competition and outclass the rivals on answering better to customers demand, making better products and deliver better value offerings due to unique business processes.

One model that profoundly combines these concepts is the 3C value flow model [1, 2, 3]. This analytical framework on value chain innovation processes and its value drivers is a combined view of issues based on literature on value systems, innovation and supply chain management. The core motto is 'faster, cheaper, better' value according to the 3C value flow model and as this paper will clearly outline, this is also applicable for a starting businesses such as OpDieFiets.nl. The alignment of the 3C value flow model is necessary to answer to the stringent demands in de market place to outclass rivals and set up companies in a lean [4, 5] and efficient way, where business innovation as strategic factor is necessary to survive in the marketplace.

The start up OpDieFiets.nl was initialized to find the answer to a wide demand and supply problem within an insufficiently served, fragmented, but large potential bicycle market. OpDieFiets.nl is using the 3C value flow model to design its own value chain.

The innovative aspect of OpDieFiets entrepreneurship is the no frills product concept in combination with the lean business model as a basis for the creation of new value offerings for bicycles. By a rigorous minimization of cost [6] without compromising quality and online easy accessibility, the low-end segment of the bicycle market is targeted.

Three key points compose the new bicycle product namely; concept, an utmost robust quality, offered at the lowest price of all city bicycles on the Dutch market. Available through a web-store eliminating the need for physical stores and are home delivered.

This paper outlines the design of the value chain of OpDieFiets.nl with help of the 3C value flow model which identifies three main value drivers; Continuation, Conception and Configuration. To find support for the design of the new value chain four other companies, Taniq, AELS, Bikesonline.nl and QuinTech, are used as input for the value chain design of OpDieFiets.nl. The focus is thus on rigorous effectiveness and efficiency in the business model and the focus on value adding processes. Therefore the following research question arose:

'Is it achievable to start a company that will establish new value offerings in the low-end bicycle market?

The structure of this paper is as follows. First, the theoretical framework is discussed, followed by a market, product and value flow analysis of OpDieFiets.nl, along with the other cases, after which preliminary conclusions are drawn.

2. Theoretical framework

The theoretical framework of the 3C value flow model (figure 1) is an emergence of 3 pillars of value chain Innovation processes to design a value chain or value system and measure value flow on product level consisting of customer value, supply value and focal enterprise value. The 3 C's stands for:

Conception:

To organize and collaborate with investment sharing (supply) partners in order to create unique and smart original processes and accelerate customer value and supply value by co-development. Co-innovation can be seen as a form of co-development. This investment sharing effect can be measured by the investment multiplier (IMP): total investment into the new product divided by investment into the new product by the focal enterprise. This investment multiplier expresses the ability of the focal enterprise, which can be the innovator, to multiply the investments in the development of the new product by involving other partners.

Configuration:

To organize and collaborate with production sharing partners in order to create and accelerate customer value and supply value by co-production. This production sharing effect can be measured by the production multiplier (PMP): total production value of the product divided by the own production value. This expresses the value contribution of the supply chain.

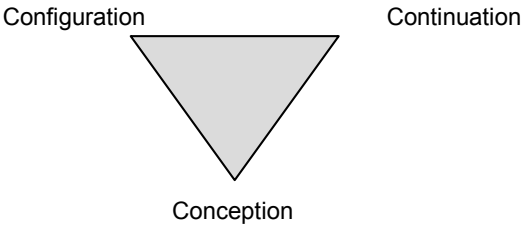

Figure 1: 3C value flow model.

The initial 3C construct was based upon major publications on the value chain, core competences, supply chain and innovation [7, 8, 9, 10, 11, 12, 13, 14] that put the generation of value in a perspective of value flow. The essence of the 3C "value-flow model" is the clear depiction of the drivers of value involving the supply chain and the customer chain, depicting the chains as a value flow system in which only value is added and waste is minimized as lean principles also depict.

Innovation

To create new value innovation is the research field to study. Today's innovative products are not solely developed any more by companies itself but can be developed in a more open [15] way introducing customers to the innovation process as well as suppliers. This approach reduces risk of product failures as all stakeholders are more involved. It also can reduce the invested capital as suppliers can participate in the development of new products eliminating waste in design processes and accommodating just in time supplies when the product is ready to enter the market.

Value Networks

The theory of value networks [16], is also used as an addition to have a solid theoretical backbone for the analysis. To build close interlinked cooperative relationships, interdependencies and value adding co-innovative cooperative links or in short value networks, firms are investing in both upstream and downstream initiatives to cope with developments. These networks are the supplier, development and product development networks.

SCM and Lean principles

Supply Chain Management is the management of the entire value-added chain, from the supplier to manufacturer right through to the retailer and the final customer [17]. More and more companies are switching their corporate processes towards a more lean approach. These developments are visible throughout many industries and disciplines, because major improvements, advantages and savings can be gained by applying these lean tools [18]. Additionally to the lean principles, characteristics of low-cost strategies are used.

As OpDieFiets.nl is anticipating a "no-frills & low-cost" strategy, it is important to state the principles and possibilities of this strategy. The low-cost strategy can be identified by three key features [19, 20, 21]:

- simple product,
- clear Positioning,
- low operating cost.

3. Market Research

To start off, the bicycle market is divided in the low-end, middle and high-end segment, figure 2, and this analysis focuses on the low-end segment. It is also important to first define the market and specify the customers to continue to the analyses. It must also be noted that an apparent 'gap' exits in the market as the low-end market is insufficiently served with a cheap, robust and quality product, yet characterized by simplicity and low variety as depicted by the following picture:

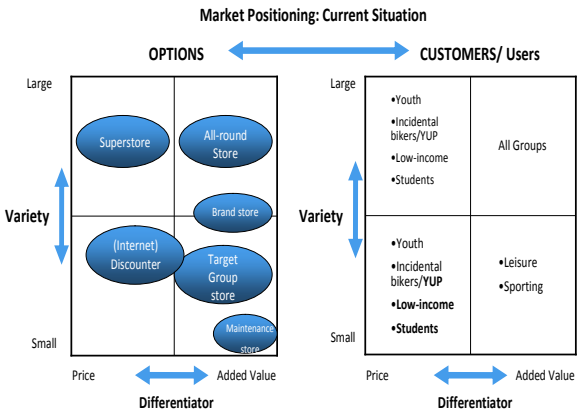

Figure 2: Market positioning matrix.

Data [22, 23, 24] shows that annually 1.4 million new bicycles and 650.000 second-hand bicycles are sold in The Netherlands forming the total market potential. Selections need to be made on price range, bicycle type and purchase channel ("Buy without trying"). The next figures 3 and 4 provide a schematic overview of the market segments that are relevant.

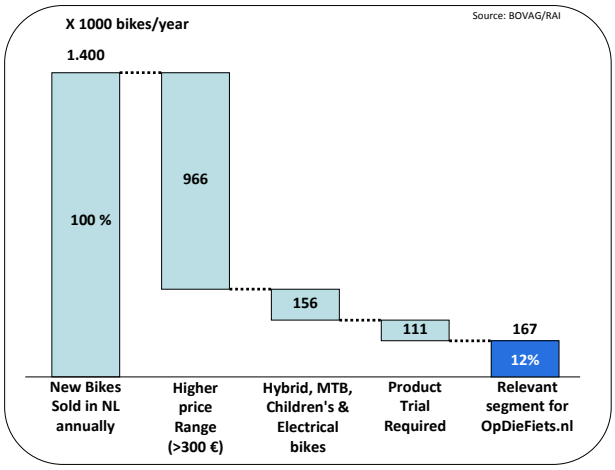

Figure 3: The relevant market of new bicycles.

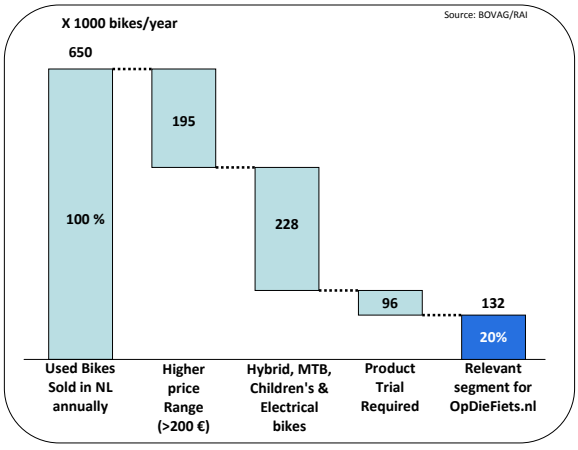

Figure 4: The relevant market of second hand bicycles.

Figure 3 and 4 shows that the relevant market segment in NL is 167.000 for new bicycles/year and 132.000 for second hand bicycles/year, totaling to 299.000 units for as market potential. The target groups are students, YUP's, the youth and low-income civilians [25], [26], 27].

Product research

Based on research [28] the following arguments influenced the product choice:

- The product should be simple and robust making use of the low-cost philosophy.
- The low-end market that OpDieFiets.nl is targeting is not sufficiently served and fragmented.
- This market has a potential of 299,000 bicycles annually.
- Additional products will be sold via the internet as additional revenue generating activities within the no frills philosophy.
- This concept is easily expandable in other countries and cities.

The market should be served with a cheap, robust and good quality bicycle in the price range <€100,- including taxes. Customers indicated this as the ceiling of price they are willing to pay for the bicycle. This bicycle is a city robust bicycle. The availability of these kinds of bicycles is low at the moment.

4. Case analysis

Introduction

The design of the value system for OpDieFiets.nl will adapt characteristics and teachings from the four business cases. Analysis of the cases has been adapted from Beelaerts, Dumitrescu, Curran, (2008). The four business cases are; 1)Taniq, 2) AELS, 3) Quitech Engineering Innovations, start ups from Delft University of Technology and 4) Bikesonline.nl.

Continuation

If we look at the Taniq, it understands well what the customer wants, in respect of durability at affordable costs of innovative automotive products, because it close-cooperates with the customer in this case the truck manufacturer. The product for OpDieFiets.nl had been developed upstream with the help of potential future customers, which is in line with value flow driver "Continuation". Continuity of the start up is better preserved by involving the customer into the value development process (Von Hippel, E., 2005).

A great deal of Customization is performed for its products upstream, which is also the case for AELS and Quintech. OpDieFiets.nl has customization, but only within a low-cost, no-frills philosophy, downstream. For Bikesonline.nl the amount of customization is available but less tempting due to its large array of products and configurations. Due to the fact that some of these products will not be exactly what customers want, automatically waste will emerge in the value chain. This example of extra waste of Bikesonline.nl is not preferable for OpDieFiets.nl. Leaving room for customization based on customer involvement is thus necessary.

Conception

For Conception Taniq and Quintech hold a patent and that is their reason of existence, whereas AELS delivers a total package product/service combination. These companies manage the chain to keep control on their partners and deliver value to customers that is unique, by bringing together different value adding parties and controlling the chains as a 'value processor'. Also its knowledge of its customers and the specific student market is a big advantage to know what the customers want and to design the chain to deliver what the customer wants. Taniq, AELS and Quintech all have thorough knowledge of their customers and suppliers, because they work together in their product development phase. This was also partially

true for OpDieFiets.nl only for the startup product development phase. For OpDieFiets.nl, Conception is its ability to integrate parties and to control the value chain as well. Minimization and cost control in combination with maximizing customer value is the goal for OpDieFiets.nl

Configuration

As can be seen from the different cases of Taniq, AELS and Quintech all perform some sort of coordinated and integration mode, processing demand value into supply value. Waste is eliminated and only value adding activities are integrated in the chain. OpDieFiets.nl could also initiate a coordinated and integration mode processing demand value into supply value, but with a limited presence within the chain. If we look at the physical value system, the value system of Taniq most resembles the anticipated value system of OpDiefiets.nl. If we look at Bikesonline.nl we see similarity in the value system, as it also has similar value offerings, but still some waste presides in the value system. The biggest difference with the other start-ups is that OpDieFiets.nl serves the low-end market, whereas Taniq, AELS and Quintech focus on the high-end market which gives a difference in value system. Bikesonline.nl is somewhere in the middle.

The Value Network for Taniq, AELS and Quintech are Product Development Networks. For OpDieFiets.nl and Bikesonline.nl this is the Supplier Network. OpDieFiets.nl holds direct relationships with its suppliers and clients as the focal company and coordinates the relations between the different entities. The other two networks are more sophisticated as networks in comparison with the network that OpDieFiets.nl is currently in. If the company expands to other countries and develops a broader range of products it will move to the distribution network. If OpDieFiets.nl will fully design and co-develop its own bicycles it will adapt to the product development network.

As a start-up company, OpDieFiets.nl could start in a Supplier network moving toward the distribution network, whereas Taniq, AELS and Quintech already have the product development network. This can be seen by the fact that they cooperate with Universities and other institutions on developments of their services and products. For OpDieFiets.nl and especially for Bikesonline.nl this is not the case in the start-up phases. Due to the fact that the product of OpDieFiets.nl is simple and a low-end market is served a product development network could be good for the future but is not completely feasible to develop in the start-up phase. From these cases it thus could be seen that this network is not realistic.

It can be stated that the use of the 3C value-flow model for OpDieFiets.nl could be useful to analyze its value system and for value system design. Similarities with the four business cases Taniq, AELS, Quintech and Bikesonline.nl are present and can give a definition for the business model of OpDieFiets.nl.

5. Design of value system for OpDieFiets.nl

Introduction

OpDieFiets.nl will introduce the no frills concept eliminating non value adding product features and organizational activities from a customer value perspective. The no frills concept of OpDieFiets.nl means that one type of bicycle with only the basic features and function is on offer. OpDieFiets.nl makes it cheaper to buy a bike for it sole purpose: a means of transportation. The product is entirely outsourced. Furthermore, the customer will be able to buy additional accessories on the site like, locks, clip-on lights, leaving it to the customer to decide what is necessary for the bicycle. This keeps price low and allows for flexibility. Another advantage is that additional profit can be made on the extra accessories. The complete order is communicated to the expeditor and delivered the customer. The bike will be sold through an attractive website, which has been developed and fully tested. Payments are done by the iDeal system.

Continuation

A questionnaire was held under 28 customers who went for a trail with a prototype bike. The results indicate that within the group of 28 initial bicycles, there are positive indications about the customer satisfaction. Overall it can be stated that the product is in line with expectations and customer demand for this particular market segment and the people interviewed. The people interviewed, were selected on the basis of the majority in the low-end market segment that is targeted by OpDieFiets.nl and were a natural selection of respondents from that group.

The product trial has been performed in January 2008, during which thirty sample bikes, were sold to actual customers for a reduced price. The respondents provided extensive feedback in which they were asked to give their opinion of the bike and other aspects. They were asked, on an ordinal scale, what they thought of the quality of the bike and the parts, the website, the ordering process, the assembly, the delivery and if there were any defects on the purchased bicycle. But the most important questions were what the respondents thought of the price in comparison to the quality, what the psychological ceiling of the price for the bike would be and if they would recommend the bike to somebody else. This was set at € 109,- incl. taxes. As these results are indicative in comparison to the potential market for these bicycles, it gives an optimistic and clear view of the potential to create value. Even after two months of testing all of the interview people said they would recommend others to purchase the bike. Secondly, their feedback resulted in a change of various parts in order to further improve product satisfaction.

Conception

Smart trading and an efficient business organization allows for low-costs and low-pricing. The Business concept of OpDieFiets.nl is unique for the bicycle business. None in the bicycle industry have the same business process.

OpDieFiets.nl anticipates on the market situation that no online company is selling low- cost bicycles directly to the customer without owning a shop or having expensive personnel. The founders of OpDieFiets.nl will only control all administrative tasks and the general coordination.
The core business of OpDieFiets.nl is thus the coordination between supplier, expediter and the customers. The products go directly from supplier to the expediter and on to the customer. Using online selling, the customer's details are communicated to the expediter, who handles all transportation and storage from the point the containers arrive at the port of Rotterdam towards the customer's door. The supplier handles all production, assembly, shipping and customs towards the port of Rotterdam.

Internal organization is minimized by selling the bicycles through the internet and outsourcing all storage and transport responsibilities. Bicycles will be sold online, which eliminates having a store and personnel. The customers will pay in advance and the bicycles will be delivered at home in a 90% assembled state. Advantages are that when the brand has become well known, a large part of the direct customers can be reached and served easily. Online selling is also cheap, quick to set up and an easy accessibility means starting the business easily, while providing for an easy expansion of the business. The value system is relatively compact and runs directly from the supplier to the end customer. In this fashion all wholesalers, middlemen and stores are cut out to save costs. There is no own store, handling personnel and storage. The business office can be small with minimal accessories to run and keep control of the value chain.
OpDieFiets.nl acts as the coordinator and processor of value between supplier, expediter and customer. Purchasing of the bicycles and 3rd party delivery amounts one part of the price the customer is paying. Alignment of the Conception with Continuation is one to one, as direct communication can be done between customer and supplier through OpDieFiets.nl.

The development of the low-cost bicycle was fully absorbed by the suppliers which relieved OpDieFiets.nl from risk-taking investments.

Configuration

The configuration process is achieved by visiting 3 supply partners in Asia and Africa for making agreements on how and on which conditions cooperation was possible. Four interviews with logistical companies in the Netherlands were held to cooperate and design the logistical process.

From the point the bicycles enter the harbor in Rotterdam, to the storage & delivery; the bicycles will be handled by an expediter delivering at the customer's door at the lowest cost possible. All distribution cost including transport and storage is handled by the expediter, which is much cheaper compared to owning own storage and logistics services. Customers have direct contact with the expediter for delivery appointments. All administrative tasks and contact with the suppliers and the expediter are controlled by OpDieFiets.nl. All logistical costs are the cost for the clearance in the port, clearance to and from the storage facility, general storage and shipping directly to the customers. All these total logistical costs are covered by the payments of the customers for the shipping of their goods to their address. All logistical cost of one container divided by the amount of bicycles in one container is the additional shipping costs for the customers. These costs including a small margin will become the extra cost a customer needs to pay for shipping. So OpDieFiets.nl will not have any overhead cost regarding storage, clearance and shipping.

The suppliers are chosen from the 'developing low-wage' countries with special trade agreements between the Netherlands and its government. This means that import tax on bicycles is attractive (usually 0%) and that assistance in trade and shipping is well developed. Suppliers from countries that can compete with suppliers from these 'developing' countries including the import tax are also considered for the future. OpDieFiets.nl has a solid agreement with one trustworthy supplier with over 25 years of experience in production of city bikes and the typical Dutch 'granny bicycle'. The contact has been open, professional and successful and based on co-development. A second supplier has been contacted as well and will be developed to a second supplier in parallel. Also an expeditor has been selected, who will take care of all logistics in The Netherlands. All numbers and figures are based on existing quotations.

The Value system has been designed with teachings from the four business cases. The 3C value-flow model and lean principles have also contributed to the formation of this "lean value system" avoiding non value adding activities as much as possible. The result is the following value system exposed in figure 5.

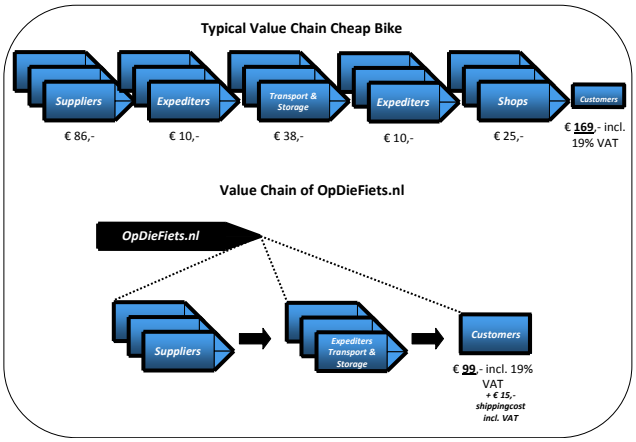

Figure 5: Value system of OpDieFiets.nl.

6. Conclusion

This brings us to the answer to the main research question that has been drafted at the beginning of this thesis:

"Is it achievable to start a company that will establish new value offerings in a segment of the low-end bicycle market?"

After concluding all important aspects for OpDieFiets.nl it can be stated that it is achievable and innovative (process)

indeed to establish this company to offer new value offerings within a new market that will be formed by these ideas. It is clear that there is a need for such a product and value offering. It can be stated that there is a demand for a cheap, robust and good quality bicycle in a market that is insufficiently served. This market is characterized as the low-end bicycle market.
The organization is designed around the three value driving concepts:

- conception to capture the specific customer demand,
- configuration to involve suppliers delivering a large part of the customer demand,
- conception to establish a unique value processor flowing value between demand and supply.

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